

CERTIFICATE OF MAILING

I certify that this Declaration in Support of Evidence for overcoming Rejection is being filed via facsimile to the United States Patent and Trademark Office at 703-872-9306 under 37 C.F.R. 1.8 to the attention of the Commissioner for Patents, Mail Stop AF, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: April 4, 2005

John Ann Williams
Signature of Person Mailing Correspondence

PATENT**IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE**

Applicant: : SHAW, Scott D.
Serial No.: : 10/600,720
Filed: : June 20, 2003
Title: : FLOW TESTING SYSTEM AND METHOD
Examiner : CYGAN, Michael T.
Group Art Unit : 2855
Confirmation No. : 5846
Attorney Docket No. : 40850.0100

**DECLARATION IN SUPPORT OF EVIDENCE FOR
OVERCOMING § 103(a) REJECTION**

I, Scott D. Shaw, declare the following:

1. I am the sole inventor of and patent applicant for U. S. Patent Application Serial No 10/600,720, filed June 20, 2003, entitled FLOW TESTING SYSTEM AND METHOD (the '720 application). My career in industry has spanned over twenty years of work in several state-of-the-art manufacturing plant start-ups for companies such as Digital Equipment Corp. and TRW Vehicle Safety Systems in which I have been heavily instrumental in all aspects of automated manufacturing equipment design, procurement, and integration. My expertise has included the design and refinement of specialized automated machines, systems, and manufacturing processes to reach or exceed design specifications and manufacturing throughput requirements. I have also obtained extensive experience in several different engineering disciplines (mechanical,

1643854

electrical, computer science, and machine vision), having held the positions of automation engineer, manufacturing engineer, quality engineer, senior project controls engineer and controls engineering project manager for various companies.

2. In 1988 I also founded Automated Control Systems, Inc., an automation design engineering and systems integration company. For the last several years, I have also been a Professor and Director of an Electro-Mechanical Automation Engineering Technology Program in which I teach a variety of automation and applied engineering courses. During my career, I have had the honor of speaking at several global business conferences & industrial trade seminars as an expert panelist and/or technical expert on machine vision defect detection and vision guided motion, controls engineering project management, and sensing devices and feedback systems. I also conduct technical seminars for other college professors on general automation and automation systems in manufacturing sponsored by Intel and other semiconductor manufacturers.

3. In approximately 2002, I was approached by Toyota contacted me through a colleague in the vision industry to design a machine vision solution for providing 100% inspection of the catalytic converter cores to determine cell blockage. Toyota's and the automotive industry's current quality standard comprised the manual inspecting/counting of the number of honeycomb cells that are blocked/plugged during the manufacturing process. I visited Toyota's manufacturing facility where they presented their current visual inspection process along with their desired visual inspection specifications. I requested the flow specifications and their response was that such flow specifications did not exist. Toyota explained that since the conception of the catalytic converter the industry has always attempted to count the number of

blocked/plugged cells, and thus they had never heard of, and strongly doubted, that any flow inspection specifications even existed.

4. After asking Toyota to formulate some flow specifications for catalytic converters, I received a few months later some newly developed flow specifications. I was also told that the Exhaust Systems Engineering Group had become very excited about being able to automatically inspect 100% of their catalytic converters for cell blockage during the manufacturing process utilizing flow characteristics as the test specifications. While waiting for the flow specifications, I had been researching flow test systems looking for a system that was capable of possibly meeting the estimated test specifications, but soon found that none existed. Accordingly, I conceived and designed the flow testing system set for in the '720 Application to provide a system capable of meeting and exceeding Toyota's flow testing and throughput requirements. My flow testing system was also conceived to be scalable and thus capable of meeting a wide range of test parameters and industries/technologies (i.e. musical wind instruments).

5. A proto-type flow testing system was built and sent to Toyota for testing a few weeks after receiving their approval for demonstration. Top executives from Toyota flew over from Japan to see the new flow inspection equipment because they had historically experienced a high catalytic converter reject rate at their assembly plants due to defective (blocked/plugged) catalytic converters that had gone undetected through their manual inspection. Toyota engineers were initially skeptical of and concerned over the test results as we ran the first few sets of parts, as approximately 7 out of 10 data points were of the same value, and that it was not possible to establish such repeatability. We further impressed the engineers when we explained that in order to see a wider fluctuation of the data we must adjust/lower the test parameters from their specifications. We adjusted the test limits to demonstrate the full capabilities of the machine

Apr 04 05 12:14p

Automated Control Systems (480) 545-7409

p.6

(e.g., by testing two parts simultaneously in 3 to 5 seconds with 145micro PSI backpressure resolution.) Toyota's representatives were very impressed and specified that their catalytic converter suppliers must also use our flow testing and inspection system to test for flow within 100% of catalytic converters as final inspection criteria before approval of use.

6. As a result of the flow testing system and method of the present invention set forth in the '720 Application, a long-felt need for improved inspection and throughput in testing catalytic converters had finally been fulfilled.

7. As a person signing below, I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code.

Date:

04/04/05

Signature:



Scott D. Shaw

1643854

- 4 -